STRUCTURE OF THE FIRST EMBODIMENT OF THE PRESENT INVENTION

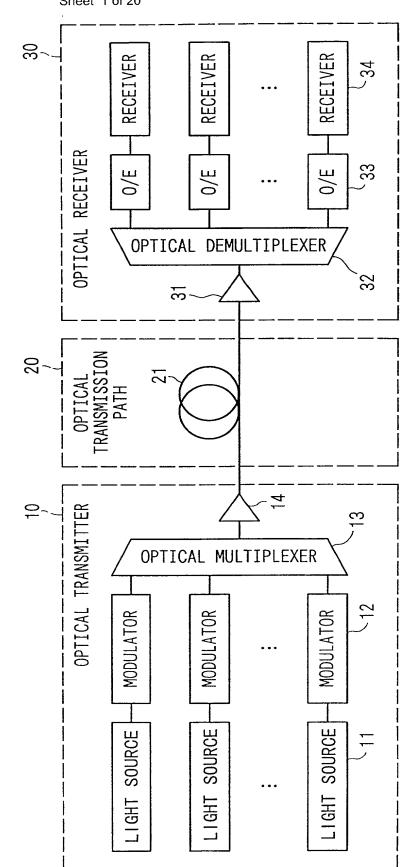


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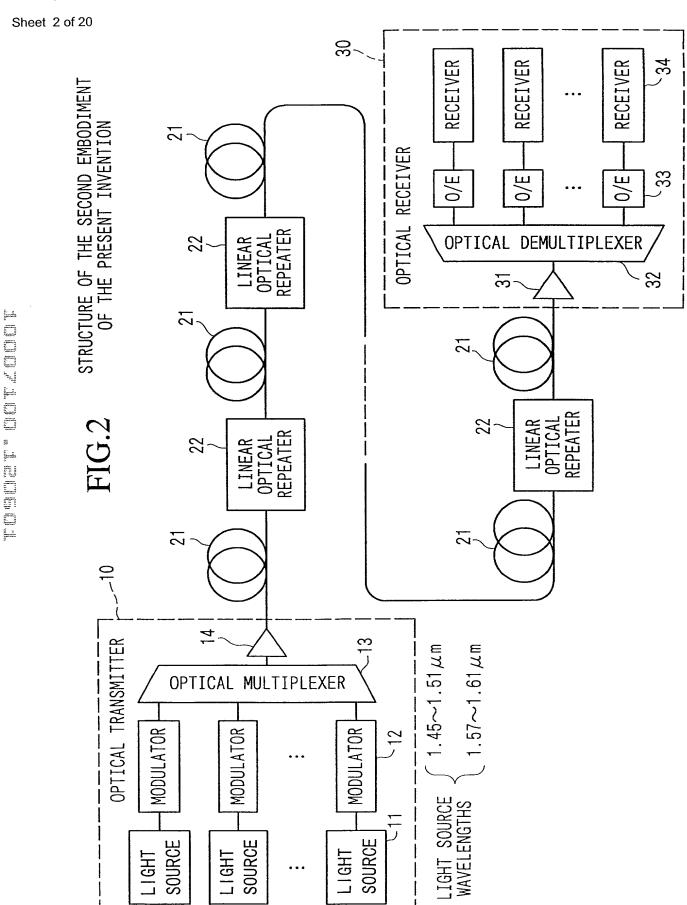
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LIGHT SOURCE 1.45 $\sim$ 1.51 $\mu$ m WAVELENGTHS 1.57 $\sim$ 1.61 $\mu$ m

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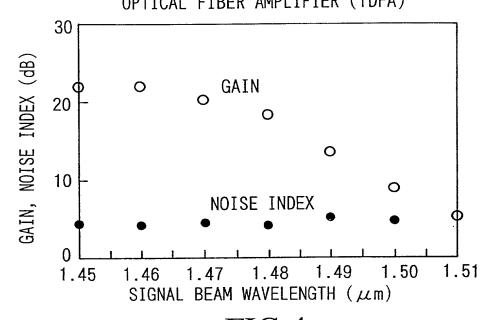
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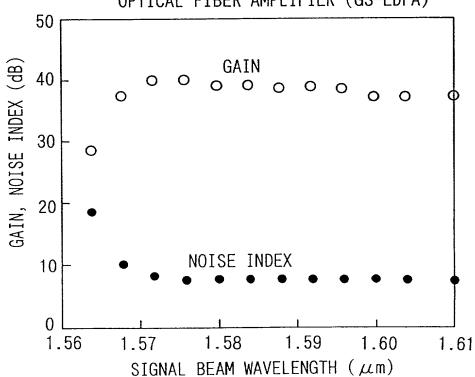
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FIG.3

GAIN CHARACTERISTICS OF A TM-DOPED OPTICAL FIBER AMPLIFIER (TDFA)



 $FIG.4 \\ \text{GAIN CHARACTERISTICS OF A Er-DOPED} \\ \text{OPTICAL FIBER AMPLIFIER (GS-EDFA)}$ 

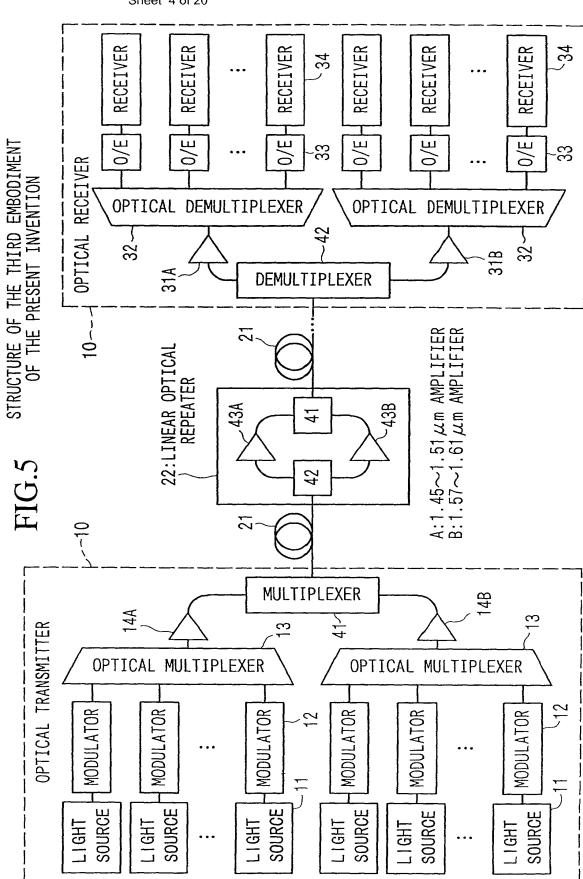


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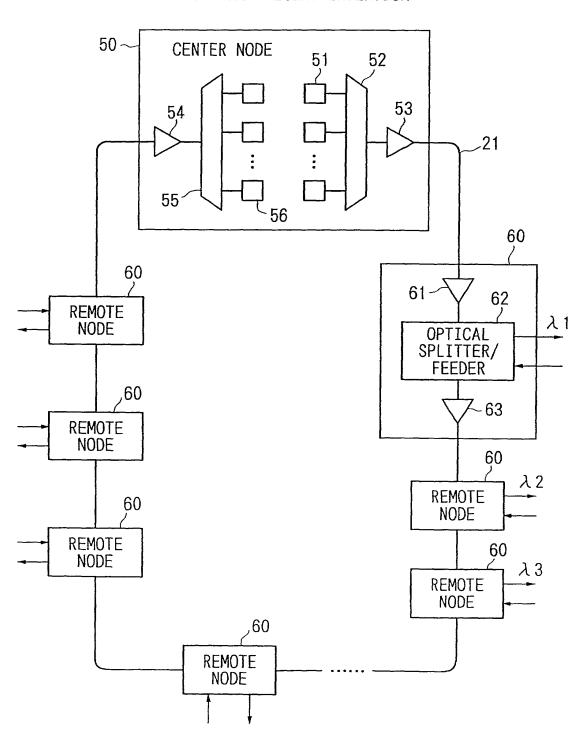
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FIG.6
STRUCTURE OF THE FORTH EMBODIMENT OF THE PRESENT INVENTION



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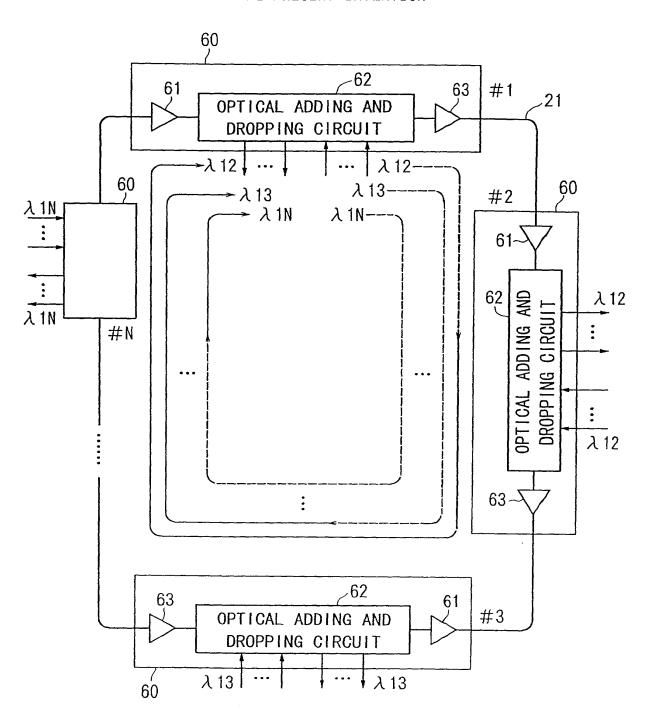
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FIG.7
STRUCTURE OF THE FIFTH EMBODIMENT OF THE PRESENT INVENTION



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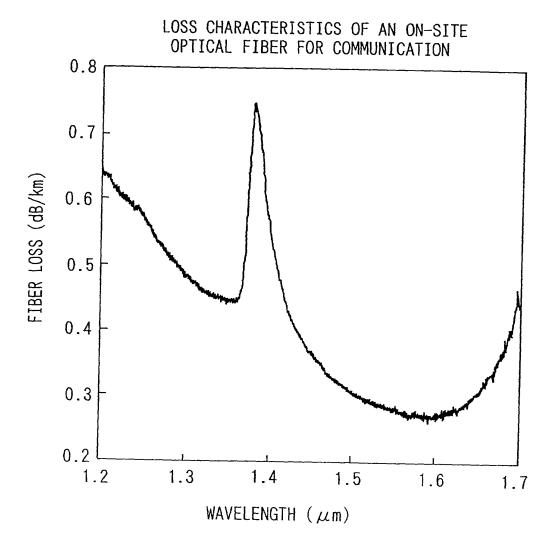
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FIG.8



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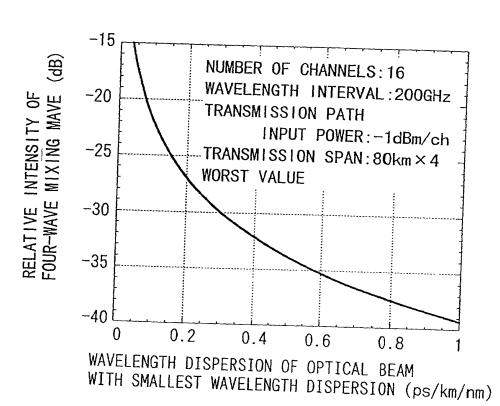
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FIG.9



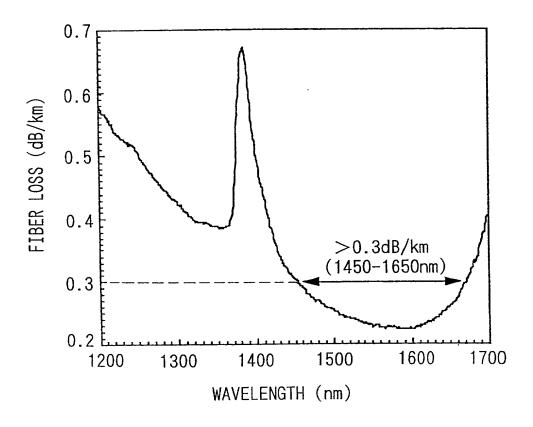
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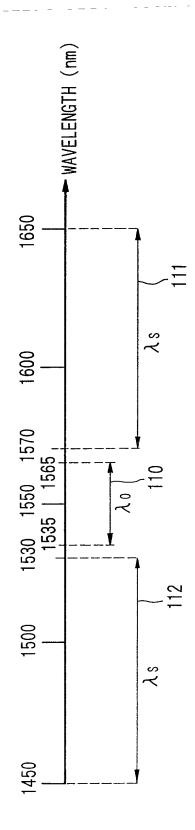
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**FIG.10** 



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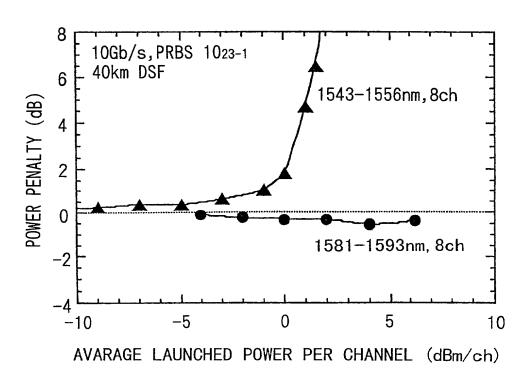
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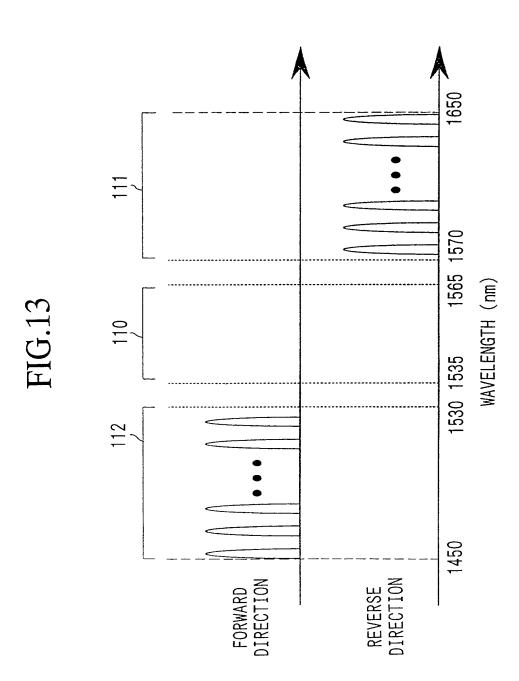
**FIG.12** 



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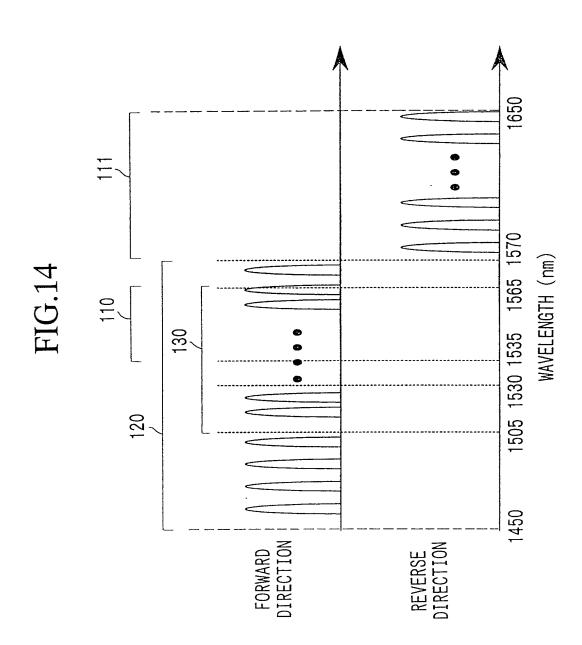
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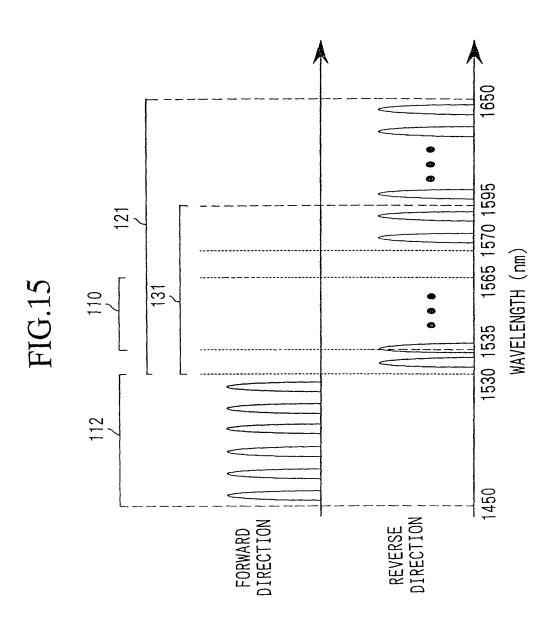
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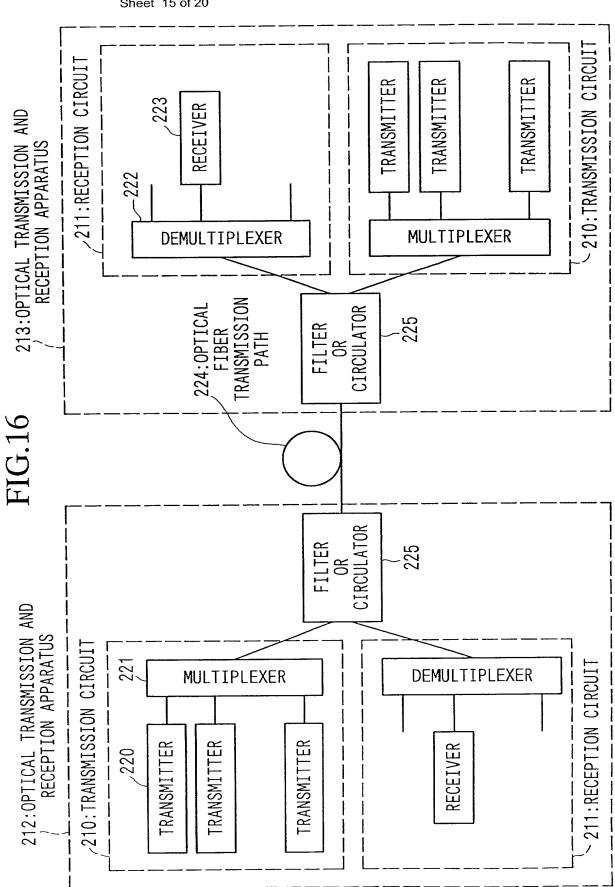


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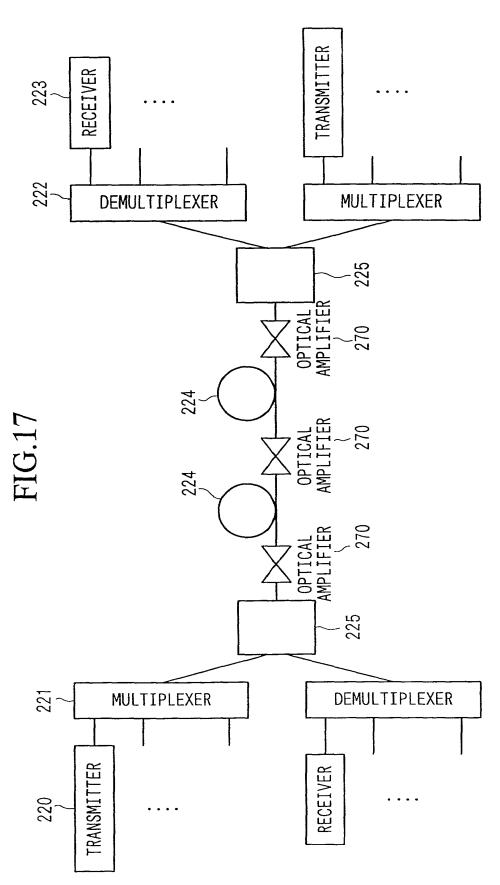


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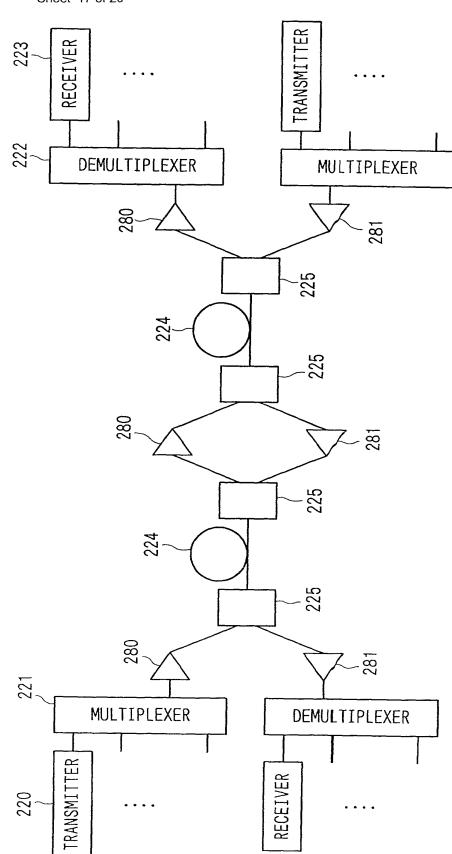


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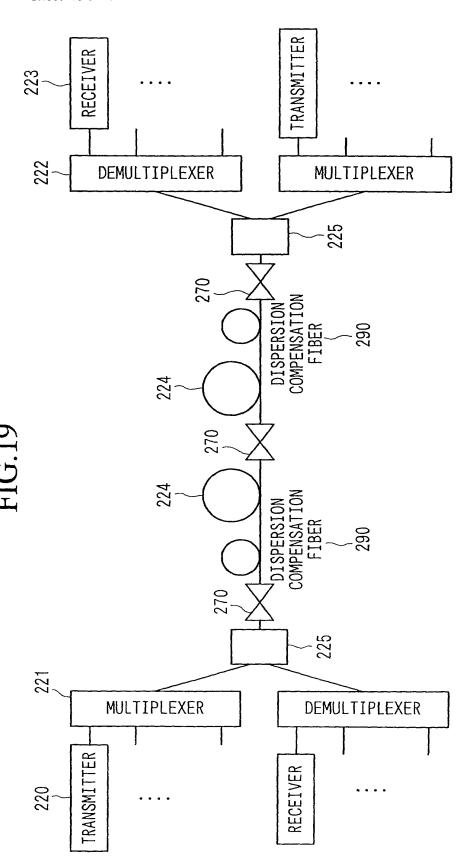


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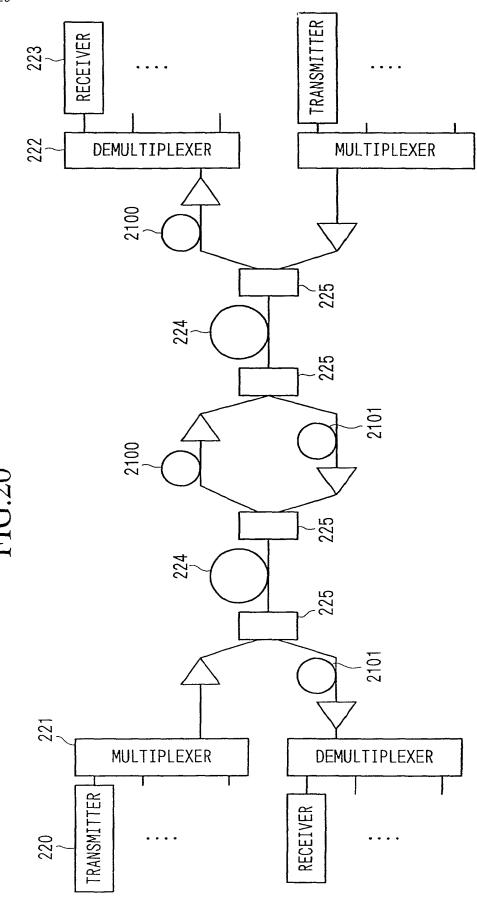


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1650 140 ZERO DISPERSION WAVELENGTH WAVELENGTH (nm) 1545 1550 1555 141 1450 FORWARD DIRECTION